Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A continuous process for the epoxidation of olefins with hydrogen peroxide in the presence of a heterogeneous catalyst promoting the epoxidation reaction, comprising forming an aqueous reaction mixture which comprises:

i) an olefin;

ii) hydrogen peroxide;

iii) less than 100 wppm of a member selected from the group consisting of an alkali metal, an alkaline earth metal, both irrespective whether in ionic or complex form, a base or a cation of a base having a pk_B of less than 4.5, and combinations thereof; and

iv) at least 100 wppm of a base or a cation of a base having a pk_B of at least 4.5 or combinations thereof,

whereby the wppm are based on the total weight of hydrogen peroxide in the reaction mixture, and reacting the reaction mixture in the presence of said ~~hydrogenation~~ heterogeneous catalyst to obtain the desired product.

2. (Original) The process of claim 1, wherein

the amount of components of group iii) in total is less than 80 wppm based on the total weight of hydrogen peroxide.

3. (Original) The process of claim 2, wherein

the amount of components of group iii) in total is less than 70 wppm based on the total weight of hydrogen peroxide.

4. (Original) The process of claim 2, wherein

the amount of components of group iii) in total is less than 60 wppm based on the total weight of hydrogen peroxide.

5. (Original) The process of claim 2, wherein

the amount of components of group iii) in total is less than 50 wppm based on the total weight of hydrogen peroxide.

6. (Original) The process of claim 1, wherein the reaction mixture comprises

iiia) less than 50 wppm alkali metals, alkaline earth metals or combinations thereof in total, irrespective whether the alkali or alkaline earth metals are present in cationic or complex form; and

iiib) less than 50 wppm of amines having a pk_B of less than 4.5 or the corresponding protonated compounds in total;

where the wppm are based on the weight of hydrogen peroxide.

7. (Original) The process of claim 1, wherein

the amount of components of group iv) in total is 3000 wppm at most based on the total weight of hydrogen peroxide.

8. (Original) The process of claim 7, wherein

the amount of components of group iv) in total is from 150 to 2000 wppm based on the total weight of hydrogen peroxide.

9. (Original) The process of claim 7, wherein

the amount of components of group iv) in total is from 200 to 1500 wppm based on the total weight of hydrogen peroxide.

10. (Original) The process of claim 7, wherein

the amount of components of group iv) in total is from 300 to 1200 wppm based on the total weight of hydrogen peroxide.

11. (Original) The process of claim 1, wherein

the components of group iv) are selected from the group consisting of organic amines and amides having a pk_B of at least 4.5, organic hydroxylamines having a pk_B of at least 4.5, ammonia and hydroxylamine.

12. (Original) The process of claim 1, wherein the reaction mixture further comprises

v) at least 100 wppm anions or compounds that can dissociate to form anions in total based on the weight of hydrogen peroxide.

13. (Original) The process of claim 1, further comprising performing said process of reacting in a continuous flow reaction system, wherein the reaction mixture is passed through a fixed catalyst bed in down-flow operation mode and reaction heat is at least partially removed during the course of the reaction.

14. (Original) The process of claim 13, wherein a fixed bed reactor comprising cooling means is used.

15. (Original) The process of claim 14, wherein the fixed bed reactor is a tubular reactor and the cooling means is a cooling jacket.

16. (Original) The process of claim 13, wherein the reaction mixture is passed through the catalyst bed with a superficial velocity from 1 to 100 m/h.

17. (Original) The process of claim 16, wherein the reaction mixture is passed through the catalyst bed with a superficial velocity from 5 to 50 m/h.

18. (Original) The process of claim 16, wherein the reaction mixture is passed through the catalyst bed with a superficial velocity from 5 to 30 m/h.

19. (Original) The process of claim 13, wherein the reaction mixture is passed through the catalyst bed with a liquid hourly space velocity (LHSV) from 1 to 20 h^{-1}.

20. (Original) The process of claim 19, wherein the reaction mixture is passed through the catalyst bed with a liquid hourly space velocity (LHSV) from 1.3 to 15 h^{-1}.

21. (Original) The process of claim 13, wherein the fixed catalyst bed is maintained in a trickle bed state.

22. (Original) The process of claim 21, wherein trickle bed state is maintained under following flow conditions:

$G/\lambda < 2000$ m/h and

$L\psi < 50$ m/h,

wherein

G is the gaseous superficial velocity defined as the gaseous flow rate in m^3/h in the continuous flow reaction system divided by the cross-section of the catalyst bed in m^2,

L is the liquid superficial velocity defined as the liquid flow rate in m^3/h in the continuous flow reaction system divided by the cross-section of the catalyst bed in m^2,

$$\lambda = \left[\left(\frac{\rho_G}{\rho_W}\right)\left(\frac{\rho_L}{\rho_{Air}}\right)\right]^{1/2}$$, and

$$\psi = \left(\frac{\sigma_W}{\sigma_L}\right)\cdot\left[\left(\frac{\mu_L}{\mu_W}\right)\left(\frac{\rho_W}{\rho_L}\right)^2\right]^{1/3}$$

ρ_G is the density of the gaseous phase in g/cm³,

ρ_L is the density of the liquid phase in g/cm³,

ρ_W is the density of water in g/cm³,

ρ_{Air} is the density of air in g/cm³,

σ_W is the surface tension of water in dyn/cm,

σ_L is the surface tension of the liquid phase in dyn/cm,

μ_L is the viscosity of the liquid phase in centipoise,

μ_W is the viscosity of water in centipoise.

23. (Original) The process of claim 13, wherein the reaction temperature is from 30 to 80°C.

24. (Original) The process of claim 23, wherein the reaction temperature is from 40 to 60°C.

25. (Original) The process of claim 24, wherein a temperature profile within the continuous flow reaction system is maintained such that the cooling medium temperature of the cooling means is at least 40°C and the maximum temperature within the catalyst bed is 60°C at the most.

26. (Original) The process of claim 1, wherein the reaction mixture additionally comprises:

vi) an organic solvent.

27. (Original) The process of claim 26, further comprising conducting the reaction in a multiphase reaction mixture comprising an liquid aqueous hydrogen peroxide rich phase containing an organic solvent having a solubility in water of at least 10 % by weight at 25°C and an liquid organic olefin rich phase.

28. (Original) The process of claim 26, wherein the organic solvent is methanol.

29. (Original) The process of claim 1, wherein a titanium-containing zeolite is used as catalyst.

30. (Original) The process of claim 1, wherein the olefin is propene.

31. (Original) A continuous process for the epoxidation of propene with hydrogen peroxide in the presence of a titanium-containing zeolite promoting the epoxidation reaction, comprising forming an aqueous reaction mixture which comprises:

i) propene;

ii) hydrogen peroxide;

iii) less than 100 wppm of a member selected from the group consisting of an alkali metal, an alkaline earth metal, both irrespective whether in ionic or complex form, a base or a cation of a base having a pk_B of less than 4.5, and combinations thereof;

iv) at least 100 wppm of a base or a cation of a base having a pk_B of at least 4.5 or combinations thereof; and

v) methanol,

where the wppm are based on the total weight of hydrogen peroxide in the reaction mixture, and reacting the reaction mixture in the presence of the titanium-containing zeolite to obtain the desired product.

32. (Original) A continuous process for the epoxidation of propene with hydrogen peroxide in the presence of a titanium-containing zeolite promoting the epoxidation reaction, comprising forming an aqueous reaction mixture which comprises:

i) propene;

ii) hydrogen peroxide;

iii) less than 100 wppm of a member selected from the group consisting of an alkali metal, alkaline earth metal, both irrespective whether in ionic or complex form, a base or a cation of a base having a pk_B of less than 4.5, or combinations thereof;

iv) at least 100 wppm of a base or a cation of a base having a pk_B of at least 4.5 or combinations thereof; and

v) methanol,

where the wppm are based on the total weight of hydrogen peroxide in the reaction mixture, and reacting the reaction mixture in a continuous flow reaction system, wherein the reaction mixture is passed through a fixed catalyst bed in down-flow operation mode and reaction heat is at least partially removed during the course of the reaction.

33. (Original) The process of claim 32, wherein the fixed catalyst bed is in a tubular reactor and reaction heat is at least partially removed during the course of the reaction by cooling means comprising a cooling jacket.

34. (Original) The process of claim 33, wherein the fixed catalyst bed is maintained in a trickle bed state.

35. (Original) A continuous process for the epoxidation of propene with hydrogen peroxide in the presence of a titanium-containing zeolite promoting the epoxidation reaction, comprising forming an aqueous reaction mixture which comprises:

i) propene;

ii) hydrogen peroxide;

iii) less than 100 wppm of a member selected from the group consisting of an alkali metal, alkaline earth metal, both irrespective whether in ionic or complex form, a base or a cation of a base having a pk_B of less than 4.5, or combinations thereof;

iv) at least 100 wppm of a base or a cation of a base having a pk_B of at least 4.5 or combinations thereof; and

v) methanol,

where the wppm are based on the total weight of hydrogen peroxide in the reaction mixture, and reacting the reaction mixture in a multiphase reaction mixture comprising an liquid aqueous hydrogen peroxide rich phase containing methanol and an liquid propene rich phase.

36. (Original) The process of claim 35, further comprising reacting the reaction mixture in a continuous flow reaction system, wherein the reaction mixture is passed through a fixed catalyst bed in down-flow operation mode and reaction heat is at least partially removed during the course of the reaction.

37. (Original) The process of claim 36, wherein the fixed catalyst bed is in a tubular reactor and reaction heat is at least partially removed during the course of the reaction by cooling means comprising a cooling jacket.

38. (Original) The process of claim 36, wherein the fixed catalyst bed is maintained in a trickle bed state.